WESTON®
MANAGERS DESIGNERS/CONSULTANTS
5599 SAN FELIPE
SUITE 700
HOUSTON, TEXAS 77056
PHONE: (713) 621-1620

21 August 1992

Ms. Stacey Bennett
Hazardous Waste Section (6E-SH)
EPA Region VI
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

RE: EPA ARCS Contract No.: 68-W9-0015
EPA Work Assignment No.: 27-6JZZ
SIP Report and PREscore Package
Gulf Metals Industries (TXD980750707)
Houston, Texas
Document Control No.: 4603-27-0005

Dear Ms. Bennett:

Roy F. Weston, Inc. (WESTON) is pleased to present this letter report which summarizes the results of the file review and PREscore package completed for the Gulf Metals Industries Site (TXD980750707) Houston, Texas. This effort is part of the Site Inspection Prioritization (SIP) Work Assignment for various sites in EPA Region VI. The PREscore package for the site is attached and is part of our report.

INTRODUCTION

The Environmental Protection Agency (EPA) established the SIP process to help assess known or potential hazardous waste sites, address first those sites which pose the greatest threat to human health and the environment, and standardize the criteria by which sites are evaluated within the Superfund program. Through the SIP, the EPA reviews sites that generally have had a complete Site Inspection (SI) performed on them but that have not received a final decision regarding the need for further investigation or remediation. The outcome of the SIP indicates whether the SI information meets a minimum standard of evaluation reflecting the requirements of the revised Hazard Ranking System (HRS). The SIP process better enables the EPA to determine if a site is likely to receive a score of 28.50 or above under the HRS, potentially making it a candidate for placement on the National Priorities List (NPL). If it is determined that the site will not score above the NPL threshold of 28.50, the EPA is in a position to declare that the site evaluation has been accomplished.

SITE BACKGROUND INFORMATION

Gulf Metals Industries (GMI) is an inactive landfill located in Houston, Texas, northeast of the intersection of Almeda-Genoa and Mykawa Road. The landfill was operated by GMI, a company owned by Mr. Isador Robinson and his family.

Class I, II and III industrial solid waste materials as defined by the Texas Water Commission (TWC) have been disposed of at the site. Class I sludges were disposed of in lagoon-like sandpits on the property during the 1950's and 1960's, before GMI's purchase prior to 1971. The property was used by GMI for disposal of Class II wastes until January 23, 1973 when the company discontinued accepting Class II wastes. However, GMI was granted a "Certificate of Registration" for disposal of Class III wastes on March 23, 1973. The certificate stated that "the Class III wastes were to be used to fill low areas of the site, including some existing sludge pits and ponds". GMI reportedly disposed of slag, brick, and other Class III materials in the sludge pits in an effort to cover the sludges. The closure effort ceased sometime prior to 1980 because GMI lost a contract to accept residual slag from Cameron Iron. Today, GMI occupies 37 acres of land of which 16.14 acres were used for a Class III waste commercial landfill; however, it is unknown how much of the 16.14 acres is actually filled. A lagoon containing Class I sludges is still exposed, but the rest of the landfill has been partially covered.

As identified in the reports reviewed, and according to the TWC, Class I, II, and III wastes are defined as follows:

- Class I waste is defined by any waste which because of its physical or chemical characteristics poses a present or potential danger to human health or the environment.
- Class II waste is defined as a waste that cannot be characterized as a Class I or III waste.
- Class III waste is defined as a material that is inert, essentially insoluble, and does not readily decompose.

The site was listed for EPA inspection because a complaint about the site was filed with the Texas Department of Water Resources by a local resident. Previous investigations of the site have identified the lagoon as a known hazardous waste source and the landfill as a potential hazardous waste source. The groundwater and soil exposure migration pathways

are of concern at the site since a release to groundwater and observed contamination have been documented.

The south portion of the site was originally investigated as if it were a separate site which was known as the Almeda Genoa Site (TXD980623722). This has been recognized as part of the Gulf Metals property, however. The site is reported to be inactive at this time. A map of the site from the previous work is provided in Attachment 1.

Previous investigations at the GMI site include the following:

- A Preliminary Assessment (PA) by Ecology & Environment, Inc. in January 1985,
- A Reconnaissance Inspection by Ecology & Environment, Inc. in April and May 1985,
- A Site Inspection (SI) by Ecology & Environment, Inc. in July 1985,
- Domestic water well sampling by Ecology & Environment, Inc. in March and July 1985, and
- An SI by Ecology & Environment, Inc. in December 1986.

PRELIMINARY HRS SCORING

Using the data provided by the EPA from RCRA and CERCLA files, WESTON developed a preliminary HRS score for the site using PAscore (Version 1.0) and PREscore (Version 1.0) to evaluate the groundwater, surface water, soil exposure and air pathways. PAscore which was used as a preliminary evaluation tool to verify that sufficient information was available to obtain a reasonably supportable HRS score. The site received a score of 32 in PAscore, so PREscore was used to document the site score.

The preliminary HRS score obtained by WESTON for GMI using PREscore was 18.67. The results of the groundwater pathway drove the overall site score. The surface water pathway and soil exposure pathway were assessed, but they did not contribute to the site score. The air pathway was not assessed due to insufficient information. Factors that had the greatest influence on the PREscore evaluation are identified in the following sections. The preliminary HRS score relies on several assumptions which were necessary to fill data gaps and obtain a score, and these assumptions are also identified below. Conclusions and

recommendations based on the PREscore results follow this discussion. The PREscore package for the site is provided as Attachment 2.

Source Waste Characteristics

The waste characteristics of the lagoon and landfill area at the site were assessed for the groundwater, surface water and soil exposure pathways. The waste characteristics factor calculated by PREscore for each of these pathways was 32. This factor was largely driven by the area and hazardous constituents of the lagoon. The waste characteristics of each source are discussed below.

The lagoon is the primary hazardous waste source of concern at the GMI site because it is exposed and hazardous constituents have been identified within the soil/sludge located there. The area of the lagoon, which has been scored as a surface impoundment, is approximately 65,340 square feet, giving the source a Hazardous Waste Quantity (HWQ) value of 5,030 in accordance to the HRS. Ecology & Environment, Inc. performed an SI at the site in December 1986 and reported that hazardous waste constituents were detected in the lagoon. Analysis of samples collected from the lagoon indicated the following volatile and inorganic constituents and their respective highest detected concentrations:

- benzene (22 milligrams per kilogram (mg/kg)),
- ethylbenzene (320 mg/kg),
- toluene (260 mg/kg),
- tetrachloroethane (23 mg/kg),
- arsenic (17.5 mg/kg),
- barium (7,330 mg/kg), and
- lead (1,580 mg/kg).

The background characteristics of the area's soils were not reported.

The landfill area, measuring approximately 703,058 square feet, produced a HRS HWQ value of 207. Analysis of soil samples collected from the landfill detected the following inorganic constituents and their respective highest detected concentrations:

- arsenic (86 mg/kg),
- barium (500 mg/kg),
- chromium (1,040 mg/kg),
- lead (1,630 mg/kg),
- manganese (3,440 mg/kg), and

- zinc (62,800 mg/kg).

Again, relevant background concentrations were not reported.

A suspected release to groundwater of several of the inorganic constituents was indicated by earlier investigations, but background concentrations of those metals were not reported. For the purpose of scoring the site in a conservative manner, WESTON assumed that the hazardous constituents found in the domestic wells sampled adjacent to the site were attributable to the landfill and lagoon since similar constituents were detected there in unusually high concentrations. This assumption was made so that the areas of the lagoon and landfill could be used to contribute to the total HWQ at the site and possibly support a somewhat higher overall preliminary HRS score.

Groundwater Pathway

The groundwater pathway was evaluated and received a pathway score of 36.27, driving the overall site score. An observed release to groundwater assumed to be attributable to the site has been documented in nearby domestic drinking water wells. This release consists of elevated concentrations of barium, manganese, beryllium, and lead. The constituents detected in the groundwater sampled from three domestic wells have not been documented in the groundwater onsite, but they are thought to be attributable since these metals were detected in the onsite hazardous waste source areas in high concentrations. If it is not attributable, the pathway score would decrease since the groundwater targets could be scored on a potential basis only. The following data contributed most to the groundwater pathway score:

- Level I contamination (hazardous constituents present above the EPA screening concentration for cancer corresponding to the 10^{-6} individual cancer risk for oral exposure) of barium, manganese, beryllium, and lead was detected in three domestic drinking water wells located between 0.125 and 0.5 miles from the site. Barium, manganese, and lead were detected in these wells in concentrations as high as 1,210 micrograms-per-kilogram (μg/kg), 333 μg/kg, and 81 μg/kg respectively. These concentrations represent Level I contamination because they exceeded the cancer risk benchmark value of 0.0 μg/kg. It should be noted that the Maximum Contaminant Limits (MCLs) for barium and lead are 1,000 μg/kg and 50 μg/kg respectively. A total of 12 people are estimated to drink water from the three contaminated wells.

- No municipal water supply wells have been documented within four miles of the site. It was assumed that the remaining population in the area relies on municipal water supplied by the City of Houston wells or reservoirs which are outside of the appropriate target distance limits of the migration pathways.

- Groundwater resources were scored as a target. Although no documentation of groundwater usage for agricultural or aquacultural purposes was reported, groundwater is thought to be used for irrigation.

Surface Water Pathway

The surface water pathway was evaluated, but its pathway score did not contribute to the overall site score. Surface water pathway received a score of 0.00 in PREscore due to a lack of information regarding the nearby creek, Clear Creek, and the likelihood of contaminant migration from the GMI property. Too little information was available to make reasonable assumptions to obtain a score. The surface water pathway could score higher if the creek was found to be a fishery and Level II contamination was documented. The factors that most greatly influenced the surface water pathway score are as follows:

- No sampling of the surface pathway has been completed, and there is not enough information to suspect a release. The pathway was scored on potential to release basis.

- No fisheries, drinking water intakes, wetlands or other sensitive environments have been identified within the surface water pathway, restricting the number of targets and limiting the pathway score. The score could increase slightly if targets were identified. It is suspected that Clear Creek may be the location of fisheries.

Soil Exposure Pathway

Soil exposure also was evaluated for the site, but its pathway score did not contribute to the overall site score. Soil exposure received a pathway score of 0.00 in PREscore. No resident population was identified, and only a very small, nearby population is present within one mile. The most important factors considered for the soil exposure pathway are as follows:

- The lagoon is partially covered and contains Level II concentrations of benzene (22 mg/kg), ethylbenzene (320 mg/kg), toluene (260 mg/kg), tetrachloroethane (23 mg/kg), aluminum (7,410 mg/kg), barium (7,330 mg/kg),

lead (1,580 mg/kg), and manganese (135 mg/kg). A person entering the site could come in direct contact with this source.

- The landfill area is partially covered and contains Level I concentrations of aluminum (140,000 mg/kg), arsenic (86 mg/kg), chromium (1,040 mg/kg), copper (129,000 mg/kg), lead (1,630 mg/kg), manganese (3,440 mg/kg), and zinc (62,800 mg/kg). Direct contact with hazardous constituents is less likely here since the landfill is partially covered.

- The site is accessible to the public, but, it is not used as a public recreational area. Additionally, there are no resident individuals and the nearby population is very limited in number. Since the number of targets in this pathway is low, the score is limited.

Air Pathway

The air pathway was not evaluated due to insufficient information, and it received a pathway score of 0.00. Additional investigation of the waste source areas and air sampling may support an air pathway score, but a high score for the pathway probably is unlikely considering the types of sources present, the constituents detected, and their method of disposal. The metals here are not thought to be loose particulates, and the organic constituent concentrations are not high enough to warrant concern of a release to air. The contaminated soil and sludges in the landfill and lagoon are only partially covered, but no release to air has been documented. It is expected that any contribution by the air pathway score most likely would not significantly increase the site score based on the limited number of targets around the site.

Data Gaps

WESTON identified several data gaps during file review and PREscore evaluation. Future documentation of data gaps may help to increase pathway scores and support an overall site score that is greater than 28.50. The most critical data gaps include the following:

- In order to further support the score for the groundwater pathway, more onsite groundwater quality data may be needed to attribute the release to groundwater to GMI. At present, it is not clear that the elevated inorganic concentrations detected in the domestic drinking water wells are a result of a release from the site primarily since background data was not reported.

However, an alternative source of a groundwater contamination has not been identified.

- Precise population data for the area is needed to assign a known target value to the domestic wells scored under the groundwater pathway.

- In order to support a score for the surface water pathway, information concerning the surface water flow path description, data concerning the location of wetlands, fisheries and drinking water intakes, and documentation of a release to surface water is required.

CONCLUSIONS

The Gulf Metals Industries site, located in Houston, Texas, received a preliminary HRS score of 18.67 in PREscore. This score was driven by the groundwater pathway results because Level I contamination was found in three wells within one mile of the site. This pathway score is supported by analytical data and the assumption that the observed contamination in the groundwater pathway is attributable to the sources at the site. This is a reasonable assumption since the constituents found in high concentrations in the site's source areas are similar to those detected in the groundwater. The surface water and soil exposure pathway were evaluated, but they contributed nothing to the site score. The air pathway was not evaluated due to insufficient information. Based on the data presently available, the site HRS score is not high enough to make the site a candidate for listing on the NPL.

RECOMMENDATIONS

The Gulf Metals Industries site received a preliminary HRS score less than 28.50 in PREscore, but documentation of several key factors could increase the site score and potentially make the site eligible for the NPL. It is our opinion that additional investigation of the Gulf Metals Industries site is warranted to collect information that might increase the site score, especially since Level I contamination has been found in three domestic water supply wells near the site. Further investigation should focus on the factors that would most impact the site HRS score. Recommendations for addressing these factors have been prioritized from most important to least important as follows:

- Sampling of the three domestic wells previously exhibiting Level I contamination is recommended to verify that contamination is still present in

the wells. An alternative water supply may need to be provided to the residents if their water is contaminated if this has not already been done.

- Locating and sampling other domestic water supply wells near the site is recommended since a Level I release has been documented. A site score of 28.50 or above could be achieved if it could be shown that 10 more people are exposed to a Level I release to groundwater. Additionally, it may be appropriate to provide alternative water supplies if these other wells are found to contain potential hazardous constituents above benchmark levels.

- Locating and sampling domestic water supply wells upgradient and at a distance from the site is recommended to determine inorganic background levels in groundwater. This will aid in attributing groundwater contamination to the site.

- If the site is targeted for further investigations, installing and sampling a monitoring well in the lagoon area of the site is recommended to determine the migration of contaminants from the onsite sources to groundwater. This will aid in attributing the observed groundwater contamination to the site.

- Better characterization of the surface water pathway is recommended. Identification and possible sampling of any wetlands, fisheries, and drinking water intakes within the surface water pathway might help increase the surface water pathway score. It is suspected that Clear Creek may be a fishery. The site score would increase to 28.50 or above if it could be shown that Clear Creek is within 500 feet of the site, 50 pounds of fish are produced from the creek annually, and that Level II contamination exists there.

WESTON expects that completion of the recommended work would be within the scope of a Phase II SIP (focused research) and a Phase III SIP (limited sampling) Work Assignment A larger Expanded Site Inspection (ESI) probably would not be needed to complete the recommended tasks unless extensive sampling was required.

It has been a pleasure to assist you in evaluating this site. Please contact us if you have any questions.

Very truly yours,

ROY F. WESTON, INC.

Stephen J. Mitchell
Assistant Geologist II

Robert B. Beck, P.E.
Site Manager

RBB/SJM/jc

cc: Deborah Ponder, Contracting Officer, EPA Region VI (6M-FP)
Eve Boss, Project Officer, EPA Region VI (6H-MM)
J. Wormser, WESTON